Master Syllabus

MATH 1110 - Pre-Calculus Trigonometry (3, 0, 3)

Maximum Enrollment: 25

Special Facility or Equipment Needs/Safety Rules and Issues: None

Lab Fee: None

Course Description:
A study of trigonometric functions and their graphs with emphasis given to preparing students for the study of calculus. Other topics include inverse trigonometric functions and their graphs, other related functions, complex numbers, trigonometric identities and equations. A graphing calculator is required.

Prerequisites: ACT mathematics score of 22 or higher, or MATH 1100 or MATH 1105 with a grade of C or better, or satisfactory score on the SLCC placement exam

Text and Materials:
Hornsby, John & Margaret Lial. A Graphical Approach to Precalculus. 2nd ed. Reading, Massachusetts: Addison-Wesley, 1999.

Supplies: A graphing calculator is required.

Course Goal:
Students will acquire a fundamental understanding of the concepts of pre-calculus trigonometry and will improve their critical thinking, communication, and problem-solving skills while developing an appreciation for the power of mathematics and its relevancy in their lives. This course satisfies the requirement of a second mathematics course for an associate degree in Liberal Arts, General Studies, or Early Childhood Education. It will also transfer to serve as a mathematics elective for many four-year degree programs.

Course Objectives:
Upon completion of this course, the student will be able to
- apply the properties of exponential and logarithmic functions in solving real world problems;
- identify the important features of a conic section given its equation and provide the graph;
- write the equation of a conic section given its graph;
- use the basic relationships and identities involving trigonometric functions;
- solve triangles and other simple applications using trigonometry;
- compute powers and roots of complex numbers written in polar form and graph polar equations;
- use the graphing calculator as an aid in solving problems in trigonometry;
- analyze problems using critical thinking;
- use the language of mathematics properly to communicate mathematical ideas in both written and verbal form
- read an article containing a significant amount of mathematics at the level of the course and write a critical paper.

Course Content/Outline:
I. Exponential and Logarithmic
   A. Introduction to Exponential Functions
   B. Logarithms and Their Properties
   C. Exponential and Logarithmic Equations and Inequalities
   D. Applications and Modeling with Exponential and Logarithmic Functions
II. The Conic Sections and Parametric Equations
   A. Circles and Parabolas
   B. Ellipses and Hyperbolas
   C. Parametric Equations
III. The Trigonometric Functions and Applications

A. Circular Functions
B. Trigonometric Functions and the Fundamental Identities
C. Applications of Right Triangle Trigonometry
D. Analysis of the Sine and Cosine Functions

VI. Trigonometric Identities and Equations
A. Identities
B. The Inverse Circular Functions
C. Trigonometric Equations and Inequalities

V. Applications of Trigonometry: Vectors
A. The Law of Sines
B. The Law of Cosines and Area Formulas
C. Vectors and Their Applications
D. Trigonometric (Polar) Form of Complex Numbers
E. Powers and Roots of Complex Numbers
F. Polar Coordinates and Polar Equations

Assessment:
There will be three or four tests and a comprehensive final exam. Instructors should also use additional assessment such as graded homework, quizzes, projects, reports and other writing assignments, group activities, and portfolios. The grading scale is as follows: A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: 0-59.

Reading and Writing Across the Curriculum:
At least one assessment item mentioned above must be assigned with reading and writing components which satisfies the Reading/Writing Across the Curriculum requirement as stipulated in SLCC's academic policy.

Attendance Policy:
If a student misses more than 10% of the classes, he may be dropped from the course with a grade of "W" or may receive a grade of "F".

Students with Disabilities:
Students with disabilities who may require assistance or accommodation or with questions related to any accommodation for testing, note takers, readers, etc., should contact the instructor as soon as possible. Students may also contact the Dean of Students with questions about such services.

Emergency Evacuation Procedure:
A map is posted in the front of the building marking the evacuation route and the Designated Rescue Area. This is an area where emergency service personnel will go first to look for individuals who need assistance in exiting the building. Students who may need assistance should identify themselves to the teaching faculty.